



STIC Search Report

EIC 1700

STIC Database Tracking Number 149044

TO: Dawn Garrett

Location: 10C79

Art Unit : 1774

April 6, 2005

Case Serial Number: 10/729205

From: Usha Shrestha

Location: EIC 1700

REMSEN 4B28

Phone: 571/272-3519

usha.shrestha@uspto.gov

Search Notes

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 3/23/2005
 Art Unit: 1774 Phone Number: 2-1523 Serial Number: 10/729,205
 Mail Box and Bldg/Room Location: Room 10C79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organic Electroluminescent Devices
 Inventors (please provide full names): DOUGLAS ROBELLO, JOSEPH DEATON,
DAVID GIESEN, CHRISTOPHER BROWN, JIANMIN SHI
 Earliest Priority Filing Date: 12/5/2003

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search formula (1) in claim 1 attached

Thank you

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr

MAR 28 2005

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

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L2 9 S L1
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L4 SCR 1840
L5 SCR 2043
L6 8 S L3 AND L4
L7 44 S L3 AND L4 AND L5
L8 STR L3
L9 0 S L8
L10 SCR 1844
L11 0 S L8 AND L10
L12 1 S L8 AND L10 AND L5
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L14 1 S L8 SAM SUB=L13
L15 15 S L8 FUL SUB=L13

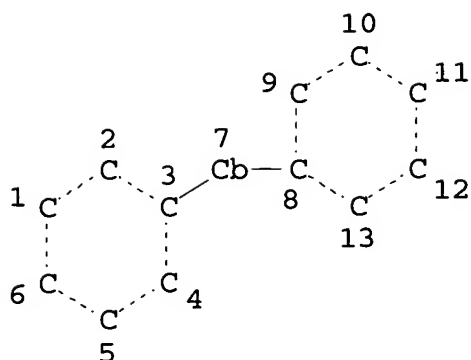
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L16 10 S L15

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L17 89674 S 1839.6.36/RID
L18 0 S L8 SAM SUB=L17
L19 4 S L8 FUL SUB=L17

FILE 'REGISTRY' ENTERED AT 11:21:48 ON 06 APR 2005

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L3 STR



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ECOUNT IS M6 C AT 7

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RING(S) ARE ISOLATED OR EMBEDDED

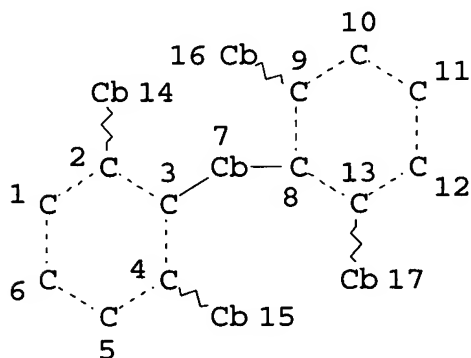
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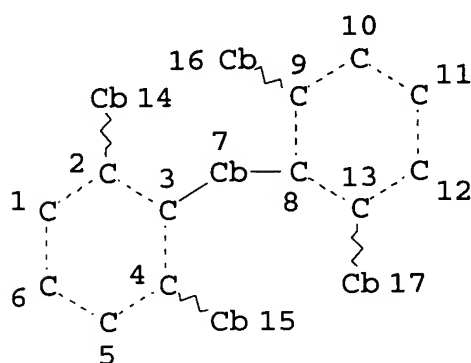
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STEREO ATTRIBUTES: NONE
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L8 STR



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FILE 'HCAPLUS' ENTERED AT 11:24:08 ON 06 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> d 121 1-13 ibib abs hitstr hitind

L21 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:920744 HCAPLUS

DOCUMENT NUMBER: 142:93505

TITLE: Oligomers of Hexa-peri-hexabenzocoronenes as
"Super-oligophenylenes": Synthesis,

Electronic

Properties, and Self-assembly

AUTHOR(S): Wu, Jishan; Watson, Mark D.; Tchebotareva,
Natalia; Wang, Zhaohui; Muellen, Klaus

CORPORATE SOURCE: Max-Planck Institute for Polymer Research,
Mainz, D-55128, Germany

SOURCE: Journal of Organic Chemistry (2004), 69(24);
8194-8204

CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Hexa-peri-hexabenzocoronene (HBC) is a remarkable polycyclic
aromatic

hydrocarbon and is often called superbenzene because of its
similarity to benzene. The facile synthesis of oligomers of HBC,
up to trimers with different modes of connection is reported.
UV-vis and fluorescence spectroscopy studies reveal that the
oligomers are electronically decoupled. This arises from the
small AO coeffs. of the bridge-head carbon atoms, the large
torsion angle between the HBC units, and the large distance of
interacting transition dipoles due to the size of the HBC
chromophore. For comparison, a methylene-bridged HBC dimer,
so-called superfluorene, was prepared. The induced planarity
improves π -conjugation and suppresses the geometrical
relaxation of the backbone upon electronic excitation, leading to
a prominent 0-0 transition band in the fluorescence spectra. The
self-assembly of the oligomers and of superfluorene was studied

by

wide-angle X-ray diffraction (WAXD) in the bulk state, and

ordered

columnar stacking occurs in the HBC dimer, p-HBC trimer, and
superfluorene. Measurements of shear-aligned samples show that,
despite increasing aspect ratio by linear entrainment of disks,
the anisotropic element that is subject to alignment by shear is

the

supramol. columns.

IT 816466-97-4P

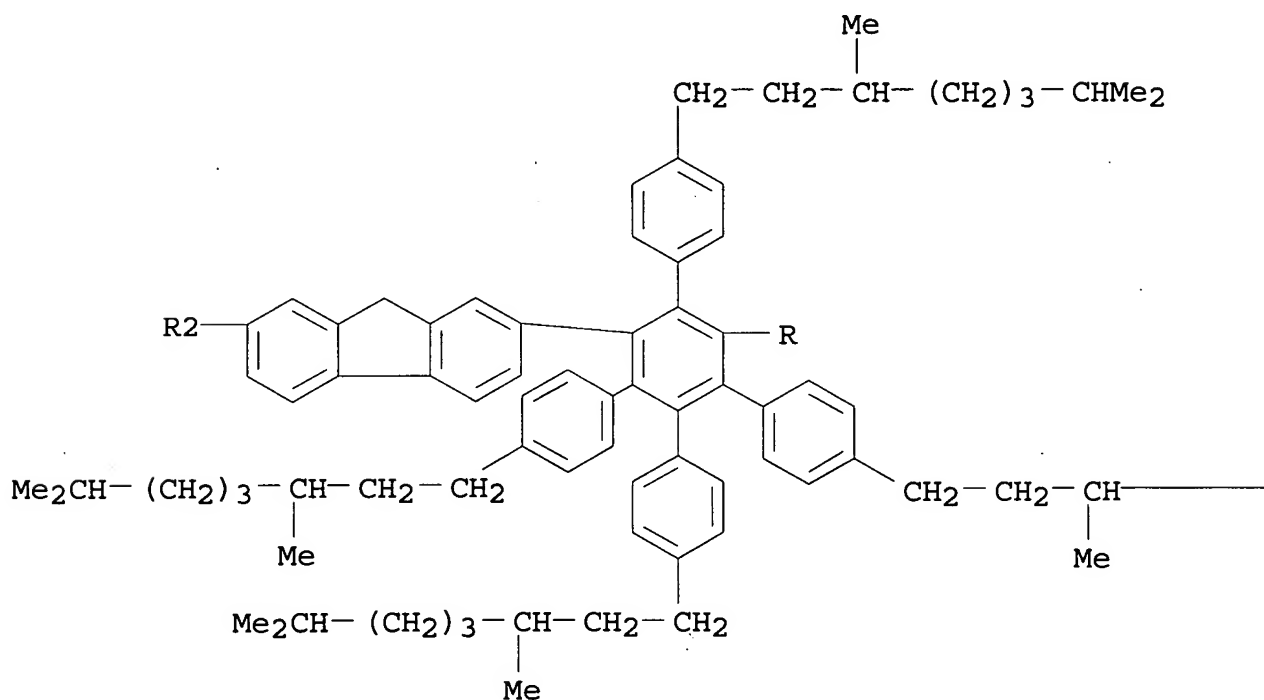
(synthesis, electronic properties, and self-assembly of
oligomers of hexa-peri-hexabenzocoronenes as
super-oligophenylenes)

RN 816466-97-4 HCAPLUS

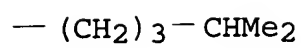
CN 9H-Fluorene,

2,7-bis[4,4''-bis(3,7-dimethyloctyl)-4',5',6'-tris[4-
(3,7-dimethyloctyl)phenyl][1,1':2',1''-terphenyl]-3'-yl]- (9CI)
(CA INDEX NAME)

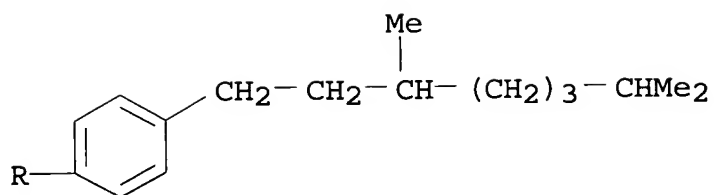
PAGE 1-A



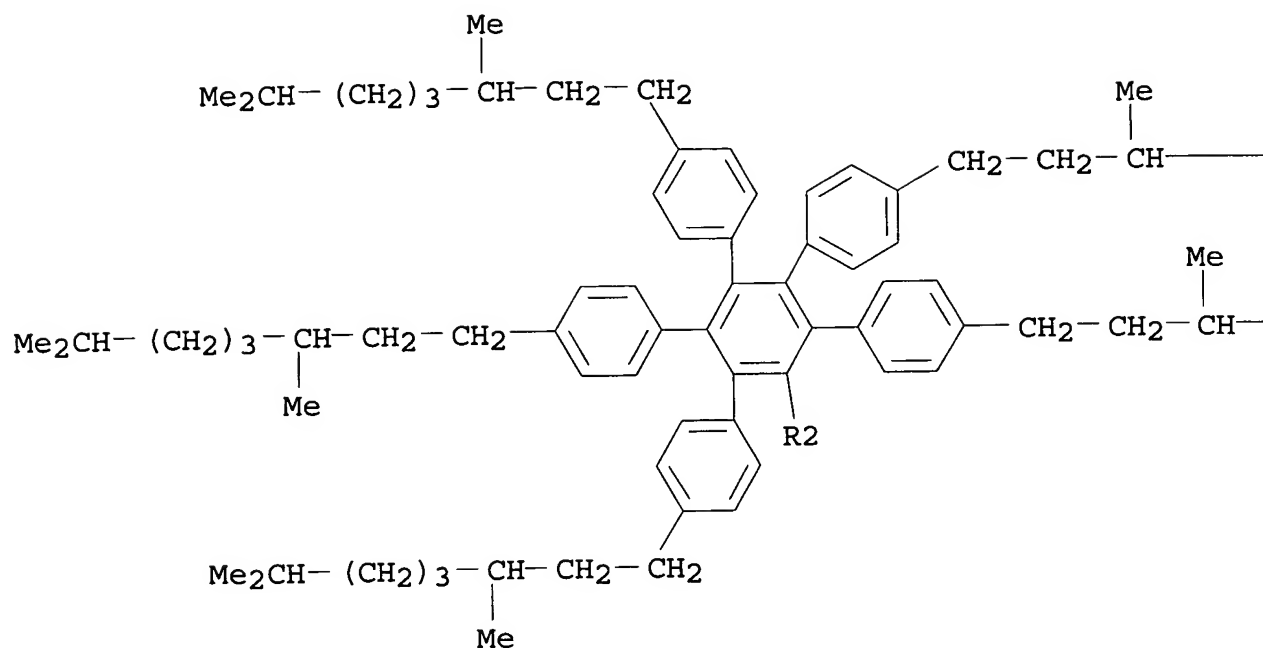
PAGE 1-B



PAGE 2-A



PAGE 3-A



PAGE 3-B

— $(\text{CH}_2)_3-\text{CHMe}_2$

—— $(\text{CH}_2)_3-\text{CHMe}_2$

CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

IT	816466-81-6P	816466-82-7P	816466-83-8P	816466-85-0P
	816466-86-1P	816466-87-2P	816466-88-3P	816466-89-4P
	816466-90-7P	816466-91-8P	816466-92-9P	816466-96-3P
	816466-97-4P	817192-97-5P		

(synthesis, electronic properties, and self-assembly of oligomers of hexa-peri-hexabenzocoronenes as

super-oligophenylenes)
REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE

IN THE RE FORMAT

L21 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:857509 HCAPLUS

DOCUMENT NUMBER: 140:94399

TITLE: New monomers and polymers via Diels-Alder
cycloaddition

AUTHOR(S): Rusanov, Alexander L.; Shifrina, Zinaida B.;
Bulycheva, Elena G.; Keshtov, Mukhamed L.;
Averina, Marina S.; Fogel, Yulia I.; Muellen,
Klaus; Harris, Frank W.

CORPORATE SOURCE: Nesmeyanov Institute of Organoelement
Compounds, Russian Academy of Sciences,
Moscow, 119991, Russia

SOURCE: Macromolecular Symposia (2003),
199(Polycondensation 2002), 97-107
CODEN: MSYMEC; ISSN: 1022-1360

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The series of new bis(naphthalic anhydrides) was prepared through
Diels-Alder cycloaddn. The Diels-Alder cycloaddn. was used as a
synthetic route to new phenylated monomers as well as to
polymers.

All polymers synthesized revealed to be soluble in a wide range
of
organic solvents such as toluene, THF, chloroform, and displayed
high
thermostability. Therefore, they can be processed easily and are
promising candidates for advanced coating systems as well as for
electrooptical applications.

IT 638188-32-6P 638188-34-8P
(monomers and polymers via Diels-Alder cycloaddn.)

RN 638188-32-6 HCAPLUS

CN 1H,3H-Naphtho[1,8-cd]pyran-1,3-dione, 6,6'-

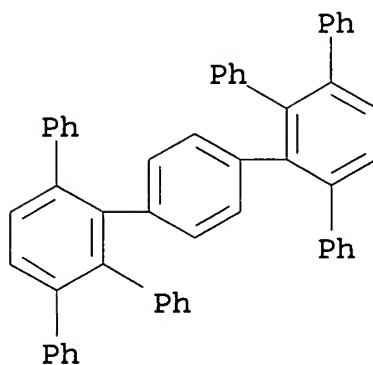
(ar',ar''',3',3''',4',4'''-hexaphenyl[1,1':2',1'':4'',1''':2''',1'
'''-quinquiphenyl]-ar',ar'''-diyl)bis-, polymer with
[1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

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CRN 638188-30-4

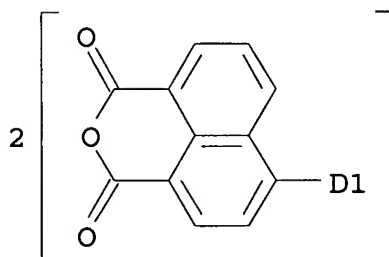
CMF C90 H54 O6
CCI IDS

PAGE 1-A



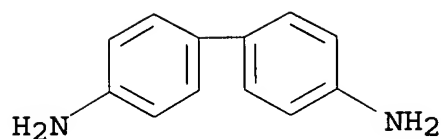
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CM 2

CRN 92-87-5
CMF C12 H12 N2



RN 638188-34-8 HCAPLUS

CN 1H,3H-Naphtho[1,8-cd]pyran-1,3-dione, 6,6'-

(ar',ar''',3',3''',4',4'''-hexaphenyl[1,1':2',1''':4'',1''':2''',1'-'
 '''-quinquephenyl]-ar',ar'''-diyl)bis-, polymer with
 [1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

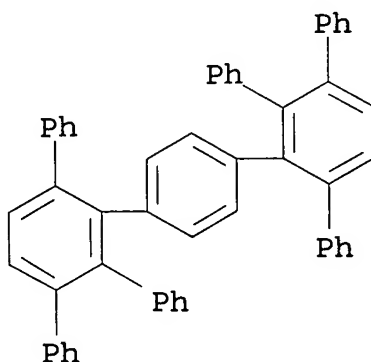
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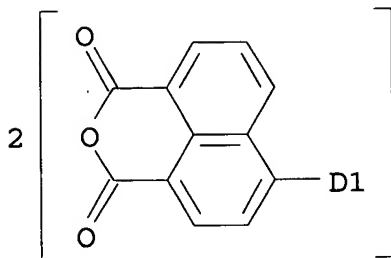
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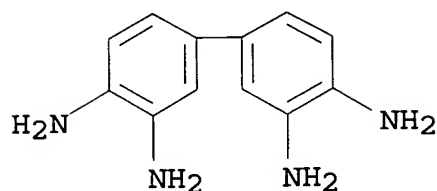
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CM 2

CRN 91-95-2

CMF C12 H14 N4



CC 35-5 (Chemistry of Synthetic High Polymers)

IT 29861-76-5P 32030-94-7P 236743-08-1P 236743-15-0P

638188-32-6P 638188-33-7P 638188-34-8P

638188-35-9P 638990-14-4P 638990-15-5P 638990-18-8P

638990-22-4P 642460-78-4P 642460-79-5P 643726-44-7P

643726-45-8P

(monomers and polymers via Diels-Alder cycloaddn.)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L21 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:810208 HCAPLUS

DOCUMENT NUMBER: 140:60063

TITLE: New highly phenylated bis(naphthalic
anhydrides) and the related

polyheteroarylenes

AUTHOR(S): Rusanov, A. L.; Bulychева, E. G.; Shifrina,
Z.

B.; Averina, M. S.; Fogel, Yu. I.; Mal'tsev, E. I.; Vannikov, A. V.; Lybenko, D. A.; Kirillov, S. V.

CORPORATE SOURCE: Inst. Elementoorg. Soedinenii im. A. N. Nesmeyanova, Ross. Akad. Nauk, Moscow, 119991, Russia

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i Seriya B (2003), 45(9), 1438-1445
CODEN: VSSBEE; ISSN: 1023-3091

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The interaction of bis(cyclopentadienones) with a two-fold molar amount of 4-(phenylethylidene)naphthalic anhydride according to the Diels-Alder reaction yielded highly phenylated bis(naphthalic anhydrides) without hinge groups. Poly(naphthylimides) and poly(naphthoylene benzimidazoles) being well soluble in organic solvents and possessing high thermal stability and photoluminescent and electroluminescent activity were synthesized by the high-temperature polycondensation of bis(naphthalic anhydrides) with benzidine and 3,3'-diaminobenzidine in phenol. Formation of highly condensed aromatic structures is possible at high temps.

IT 638188-32-6P 638188-34-8P
(preparation and properties of highly phenylated bis(naphthalic anhydrides) and related polyimides and polybenzimidazoles)

RN 638188-32-6 HCAPLUS

CN 1H,3H-Naphtho[1,8-cd]pyran-1,3-dione, 6,6'-(ar',ar''',3',3''',4',4'''-hexaphenyl[1,1':2',1'':4'',1''':2''',1''''-quinquiphenyl]-ar',ar'''-diyl)bis-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

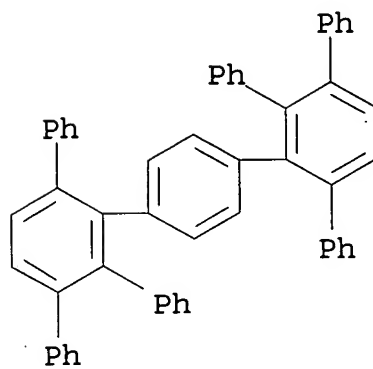
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CRN 638188-30-4

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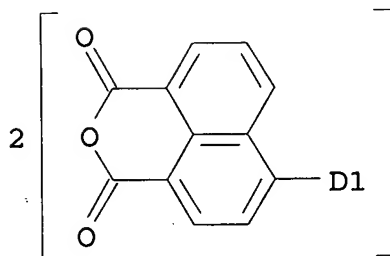
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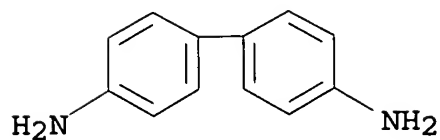
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CM 2

CRN 92-87-5

CMF C12 H12 N2



RN 638188-34-8 HCAPLUS

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(ar',ar''',3',3''',4',4'''-hexaphenyl[1,1':2',1'':4'',1''':2''',1'':
'''-quinquephenyl]-ar',ar'''-diyl)bis-, polymer with
[1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

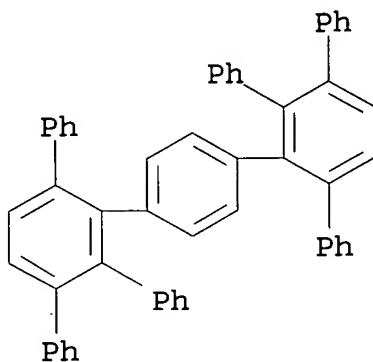
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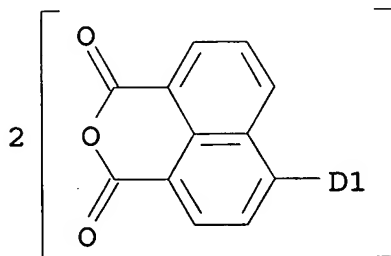
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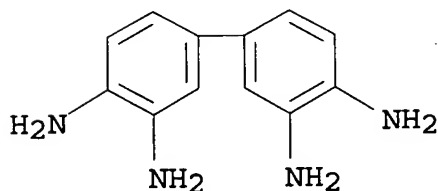
2 (D1- Ph)

PAGE 2-A



CM 2

CRN 91-95-2
CMF C12 H14 N4



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36
IT **638188-32-6P** 638188-33-7P **638188-34-8P**
638188-35-9P 638990-14-4P 638990-15-5P 638990-18-8P
638990-22-4P
(preparation and properties of highly phenylated
bis(naphthalic
anhydrides) and related polyimides and polybenzimidazoles)

L21 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:524423 HCAPLUS
DOCUMENT NUMBER: 135:242626
TITLE: Phenylated polyphenylenes based on
4,4'-diethynylbenzophenone
AUTHOR(S): Rusanov, A. L.; Keshtov, M. L.; Keshtova, S.
V.; Petrovskii, P. V.; Kundina, Yu. F.
CORPORATE SOURCE: Nesmeyanov Inst. Organoelement Compds., Russ.
Acad. Sci., Moscow, 117813, Russia
SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i
Seriya B (2000), 42(11), 1931-1935
CODEN: VSSBEE; ISSN: 1023-3091
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Phenylated polyphenylenes were synthesized by the Diels-Alder
reaction carried out under mild conditions using
4,4'-diethynylbenzophenone as a dienophilic component. It was
shown that the synthesized polyphenylenes combine high thermal
stability and good solubility in DMF, DMSO, dioxane, chloroform,
and
toluene.

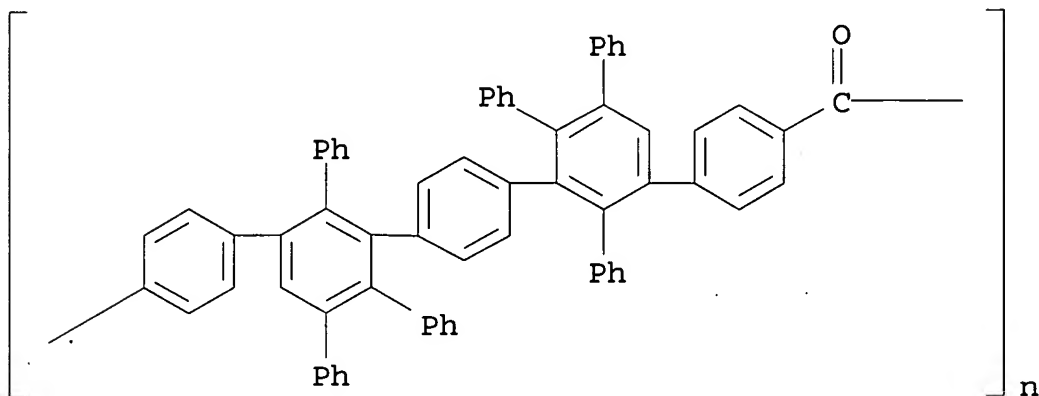
IT **360074-44-8P**
(preparation and properties of phenylated
polyacetylene-polyketones)

based on 4,4'-diethynylbenzophenone)

RN 360074-44-8 HCAPLUS

CN

Poly[(2',2''',4',5',5''',6'''-hexaphenyl[1,1':3',1'':4'',1''':3''',
1''''-quinquephenyl]-4,4''''-diyl)carbonyl] (9CI) (CA INDEX
NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

IT 213995-34-7P 236743-11-6P 236743-17-2P 292167-50-1P
360074-42-6P **360074-44-8P** 360074-46-0P 360074-48-2P
360074-55-1P 360074-57-3P 360074-59-5P 360074-61-9P
360074-64-2P 360765-95-3P

(preparation and properties of phenylated
polyacetylene-polyketones
based on 4,4'-diethynylbenzophenone)

L21 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:139275 HCAPLUS

DOCUMENT NUMBER: 104:139275

TITLE: Electrostatographic toner and imaging method

INVENTOR(S): Shirase, Akizo; Tsujita, Kenji; Takagiwa,
Hiroyuki; Kono, Masanori

PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			

 JP 60198555 A2 19851008 JP 1984-54410

1984

0323

PRIORITY APPLN. INFO.:

JP 1984-54410

1984

0323

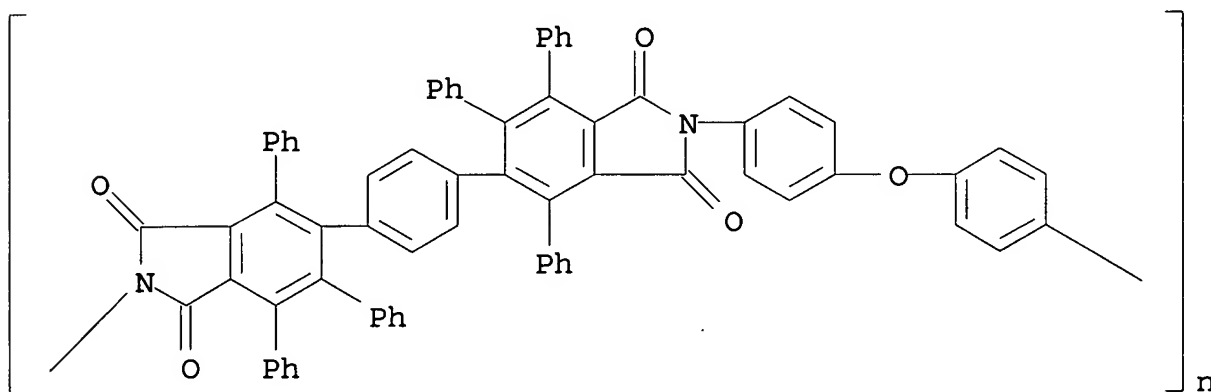
AB The core particles of the title toner, prepared by polymerization-granulation, have a coated layer of a heat-resistive polymer. Typically the core particles contain a binder having glass-transition temperature (T_g) $\geq 35^\circ$ and the coating polymer has $T_g \geq 150^\circ$. The imaging method involves formation of an electrostatic latent image using a developer containing the toner and fixing with a heat roller. The toner is stable against aggregation and does not stain the instrument parts, beside being easily fixable at low temperature and at high rate. Excellent electrostatog. performance is obtained with the toner. Thus, styrene 60, Bu methacrylate 40, C black 10, 2,2-azobis(2,4-dimethylvaleronitrile) 5, and low mol.-weight polypropylene (Viscol 660P) 5 parts were mixed and added to vigorously stirred 1.25% aqueous poly(vinyl alc.), and the dispersion was stirred at 60° for 6 h. A treatment with HCl, separation, washing, and drying gave core particles having average diameter 10 μ , which were coated with a 3% CH_2Cl_2 solution of an aromatic polyimide (XU-218, $T_g = 320^\circ$), to form a 0.1- μ coating. No aggregation occurred in tests, under conditions ranging from 35° , 80% relative humidity and 24 h to 70° , 25% relative humidity, and 2 h. Good fixing was obtained using a Teflon- or silicone rubber-coated roller heated at 110° . The cost of production using polymerization-granulation was 60% of the normal method.

IT 56361-50-3
 (electrostatog. toner from core particles coated with, for improved performance)

RN 56361-50-3 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-
1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-
5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



IT 56361-36-5P

(preparation of)

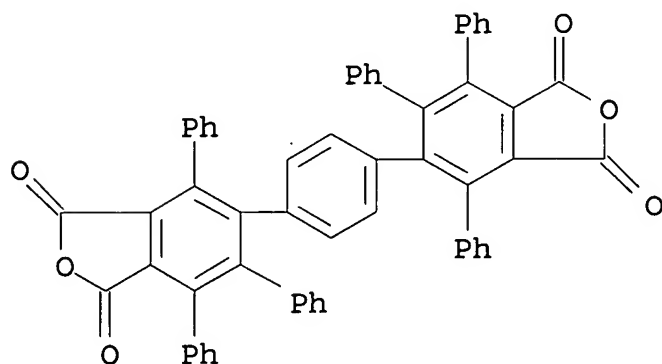
RN 56361-36-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-,
polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

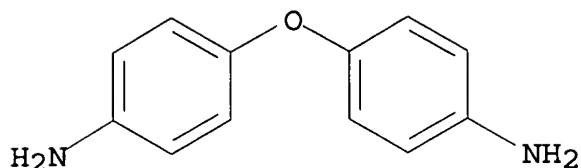
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CMF C58 H34 O6



CM 2

CRN 101-80-4
CMF C12 H12 N2 O



IC ICM G03G009-08
ICS G03G013-08
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
IT 9033-83-4 **56361-50-3** 62929-02-6
(electrostatog. toner from core particles coated with, for
improved performance)
IT **56361-36-5P**
(preparation of)

L21 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2005 ACS, on STN
ACCESSION NUMBER: 1986:139274 HCAPLUS
DOCUMENT NUMBER: 104:139274
TITLE: Electrostatographic toner and imaging method
INVENTOR(S): Shirase, Akizo; Tsujita, Kenji; Takagiwa,
Hiroyuki; Kono, Masanori
PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	----	-----	-----
JP 60198554	A2	19851008	JP 1984-54409
1984			
0323			
JP 03027113	B4	19910412	
PRIORITY APPLN. INFO.:			JP 1984-54409

1984

0323

AB The core particles of the title toner are coated with a heat-resistive polymer. Typically the core particles contain a binder having glass-transition temperature (T_g) $\geq 35^\circ$ and the coating polymer has $T_g \geq 150^\circ$. The imaging method involves formation of an electrostatic latent image using

a developer containing the toner and fixing with heat roller. The toner

is stable against aggregation and does not stain the instrument parts, beside being easily fixable at low temperature and at high rate.

Excellent electrostatog. performance is obtained with the toner. Thus, 7:3 Bu acrylate-styrene copolymer ($T_g = 40^\circ$) 100, C black (Mogul L) 10, and low mol. weight polypropylene (Viscol 660P) 5

parts were kneaded and made into core particles having average diameter

10 μ , which were coated with a 3% CH₂:CH₂ solution of an aromatic

polyimide (XU-218) 320° to form a 0.1- μ coating. No aggregation occurred in tests, under conditions ranging from 35°, 80% relative humidity and 24 h to 70°, 25% relative humidity, and 2 h. Good fixing was obtained using a Teflon- or silicone rubber-coated roller heated at 110°.

IT 56361-36-5
(electrostatog. toner containing)

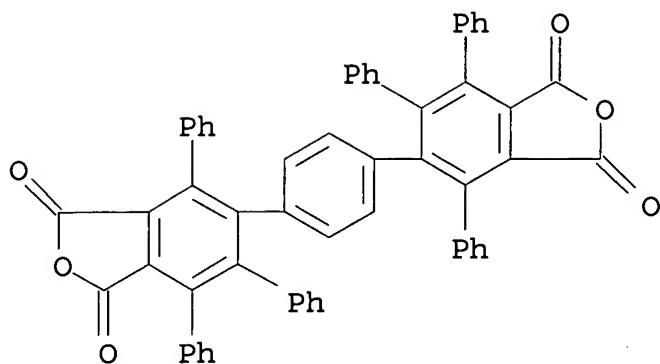
RN 56361-36-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

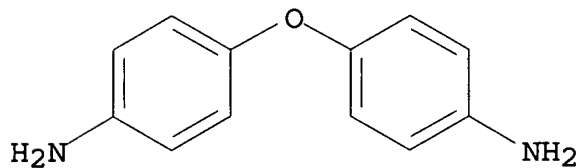
CMF C58 H34 O6



CM 2

CRN 101-80-4

CMF C12 H12 N2 O



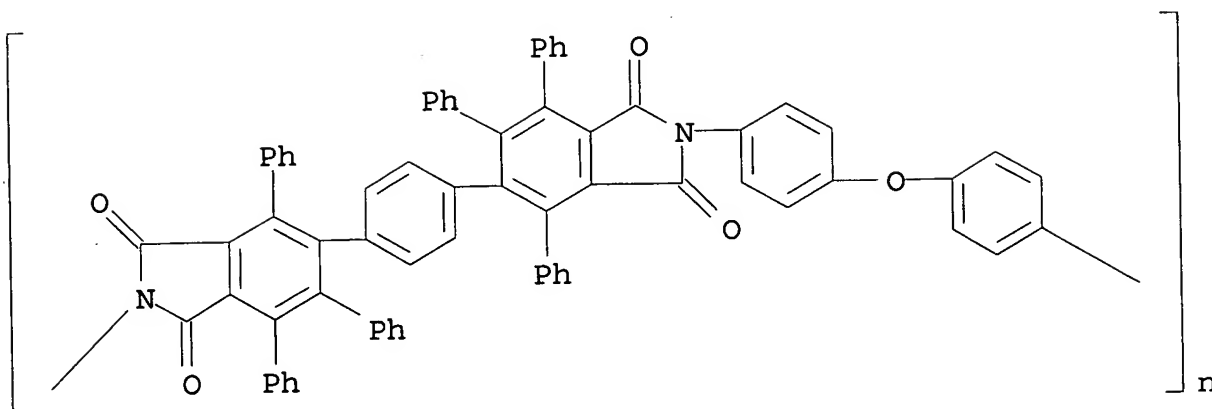
IT 56361-50-3

(electrostatog. toners coated with, for improved performance)

RN 56361-50-3 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-
1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-
5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



IC ICM G03G009-08
 ICS G03G013-08
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT 56361-36-5
 (electrostatog. toner containing)
 IT 32030-94-7 56361-50-3
 (electrostatog. toners coated with, for improved performance)

L21 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1984:210571 HCAPLUS

DOCUMENT NUMBER: 100:210571

TITLE: Phenylated aromatic heterocyclic
 polyphenylenes containing pendant diphenyl
 ether and diphenyl sulfide groups

AUTHOR(S): Reinhardt, B. A.; Tsai, T. T.; Arnold, F. E.
 CORPORATE SOURCE: Mater. Lab., Air Force Wright Aeronaut. Lab.,
 Wright-Patterson AFB, OH, 45433, USA

SOURCE: Polymer Science and Technology (Plenum)
 (1984), 25(New Monomers Polym.), 41-53
 CODEN: POSTB5; ISSN: 0093-6286

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High-mol. weight polyphenylenes were prepared by Diels-Alder
 polymerization of

biscyclopentadienones with heterocyclic diacetylenes. Imide and
 thiazole polymers with pendant Ph sulfide or ether groups on the
 cyclopentadienones had unusual solubility in aromatic

hydrocarbons. These

polymers had good thermal and thermooxidative stability and glass
 temperature 230-280°, unusually low for aromatic imide and

thiazole

IT 90240-87-2P

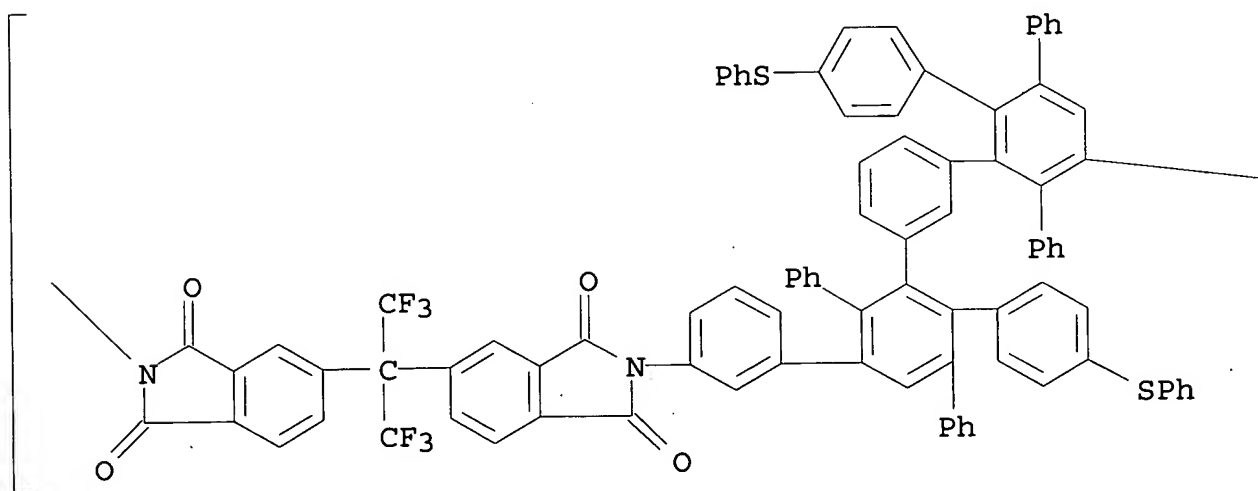
RN 90240-87-2 HCAPLUS

CN

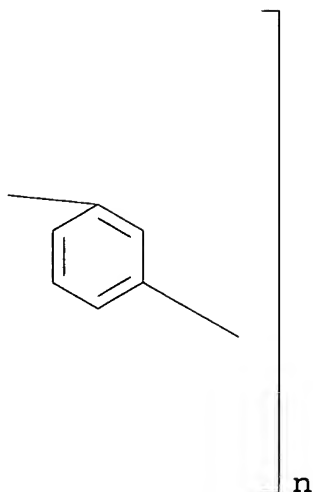
1-(trifluoromethyl)ethylidene] (1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl) [2',2''',5',5'''-tetraphenyl-4',6'''-bis[4-

(phenylthio)phenyl][1,1':3',1'':3'',1''':3''',1''''-quinquephenyl]-
3,3''''-diyl]] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-7 (Chemistry of Synthetic High Polymers)

IT 84234-26-4P 84234-26-4P 84234-28-6P 84234-28-6P
84234-29-7P 84234-29-7P 84234-31-1P 84234-31-1P
84234-60-6P 84248-02-2P 84248-02-2P 84248-03-3P
84248-05-5P 84248-05-5P 84248-07-7P 90217-90-6P
90240-87-2P

(preparation and properties of)

L21 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1984:34934 HCAPLUS

DOCUMENT NUMBER: 100:34934

TITLE: Synthesis of Diels-Alder polymers via benzyne intermediates

AUTHOR(S): Dineen, Jean M.; Howell, Earl E., Jr.; Volpe, Angelo A.

CORPORATE SOURCE: Dep. Chem. Chem. Eng., Stevens Inst. Technol.,

Hoboken, NJ, 07030, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1982), 23(1), 282-3

CODEN: ACPPAY; ISSN: 0032-3934

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Semi-ladder Diels-Alder polymers having good solubility and thermal

properties were synthesized by condensing bibenzyne dienophile with bistetraphenylcyclopentadienone dienes and with bispyrone

diene. A concentration of 5% was the best for the polymerization of

3,3'-(oxy-di-p-phenylene)bis(2,4,5-triphenylcyclopentadienone) with bibenzylne dienophile, a concentration of 10% resulted in gel formation. Monomer balance had an effect on mol. weight

Maximum mol.

weight resulted from a 0.15 M excess of the

3,3'-dicarboxybenzidine.

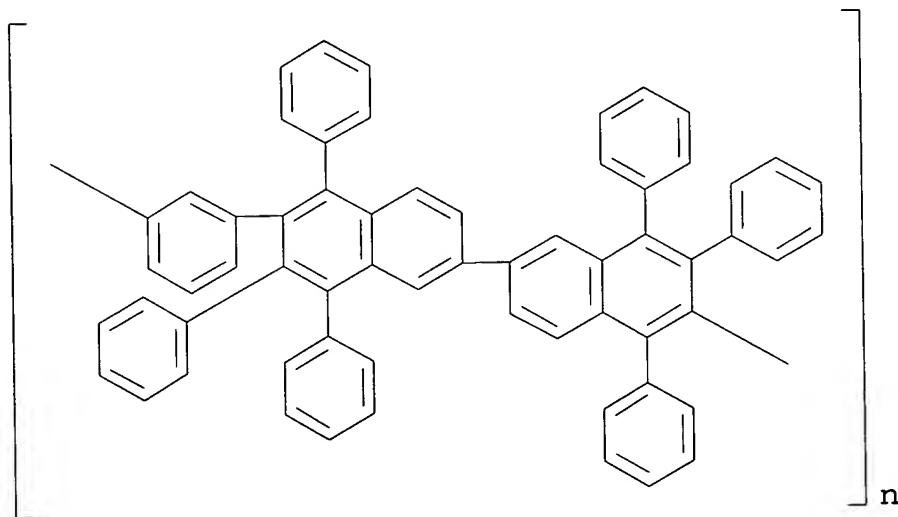
IT 88446-70-2P 88446-74-6P 88446-75-7P

(preparation of, with good solubility and thermal properties)

RN 88446-70-2 HCAPLUS

CN

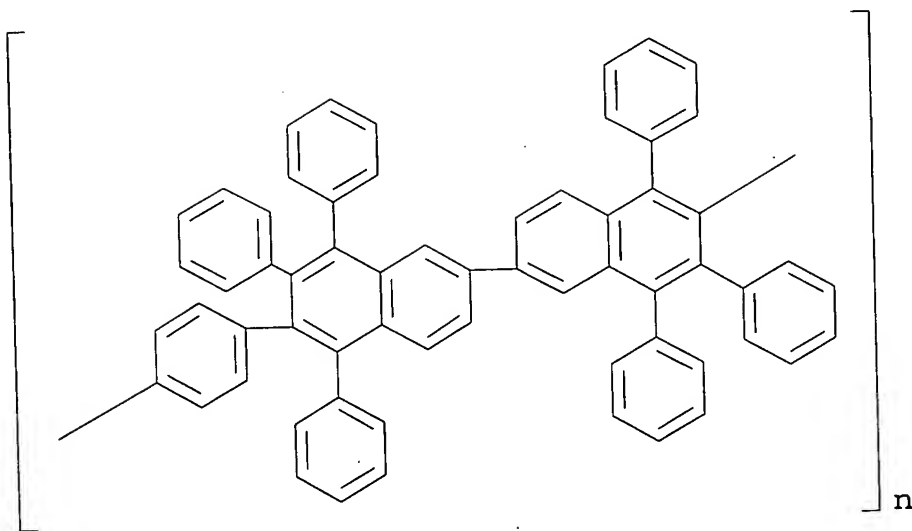
Poly[(5,5',7,7',8,8'-hexaphenyl[2,2'-binaphthalene]-6,6'-diyl)-1,3-phenylene] (9CI) (CA INDEX NAME)



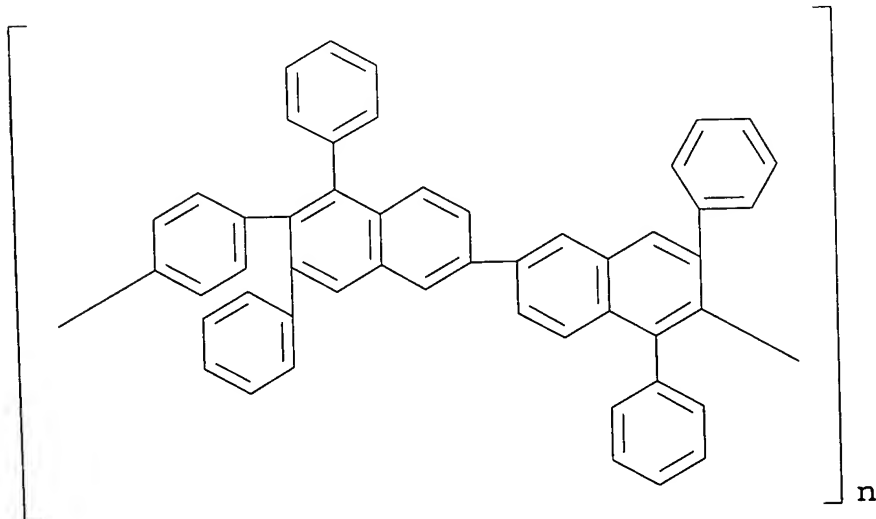
RN 88446-74-6 HCAPLUS

CN

Poly[(5,5',7,7',8,8'-hexaphenyl[2,2'-binaphthalene]-6,6'-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 88446-75-7 HCAPLUS
 CN Poly[(5,5',7,7'-tetraphenyl[2,2'-binaphthalene]-6,6'-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)
 IT 75553-75-2P 75553-76-3P 88446-39-3P 88446-40-6P
 88446-41-7P 88446-42-8P 88446-43-9P 88446-44-0P
 88446-45-1P 88446-46-2P 88446-47-3P 88446-48-4P
 88446-68-8P 88446-69-9P **88446-70-2P** 88446-71-3P
 88446-72-4P 88446-73-5P **88446-74-6P**
88446-75-7P

(preparation of, with good solubility and thermal properties)

L21 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1976:406087 HCAPLUS

DOCUMENT NUMBER: 85:6087

TITLE: Soluble aromatic polyimides. The polymerization of phenylated bis(phthalic anhydrides) with diamines

AUTHOR(S): Harris, Frank W.; Feld, William A.; Lainer, Lynn H.

CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH, USA

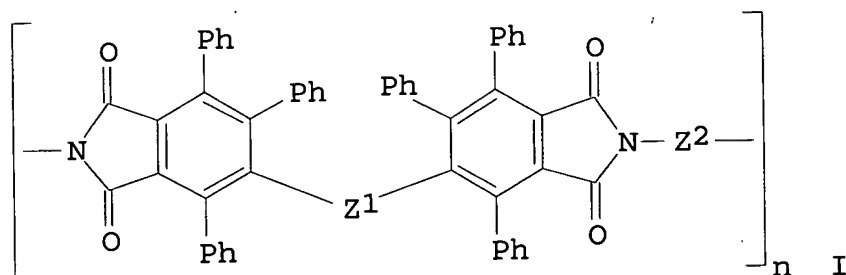
SOURCE: Applied Polymer Symposia (1975), 26(Polym. Polycondensat), 421-8

CODEN: APPSBX; ISSN: 0570-4898

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB Polyimides I [$Z_1 = p\text{-C}_6\text{H}_4$, $\text{O}(\text{C}_6\text{H}_4\text{-}p)_2$; $Z_2 = m\text{-C}_6\text{H}_4$, $p\text{-C}_6\text{H}_4$, $\text{O}(\text{C}_6\text{H}_4\text{-}p)_2$, $\text{CH}_2(\text{C}_6\text{H}_4\text{-}p)_2$, $m\text{-C}_6\text{H}_4(\text{OC}_6\text{H}_4\text{-}m)_2$] were prepared by reacting 4,4'-(1,4-phenylene)bis(3,5,6-triphenylphthalic anhydride) (II) [53925-61-4] or 4,4'-(oxydi-1,4-phenylene)bis(3,5,6-triphenylphthalic anhydride) (III) [53925-60-3] with the corresponding diamines. II and III were obtained by Diels-Alder reaction of 3,3'-(p-phenylene)bis(2,4,5-triphenylcyclopentadienone) [3432-73-3] or 3,3'-(oxydi-p-phenylene)bis(2,4,5-triphenylcyclopentadienone) [13092-45-0] with maleic anhydride [108-31-6]. The glass transition temperature

of I

ranged from 261 to 466°. Thermogravimetric anal. of I showed no weight loss in air or in N at <.apprx.530°. According to isothermal aging I underwent decomposition in air at 400°.

IT 53925-99-8P 56361-36-5P 56361-50-3P

59268-18-7P 59268-19-8P 59268-20-1P

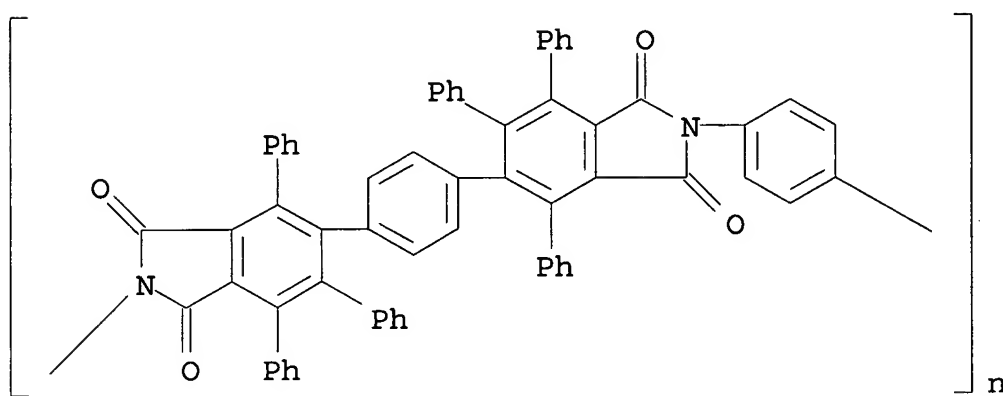
59272-87-6P 59272-88-7P

(preparation, glass transition temperature and thermal stability of)

RN 53925-99-8 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-5,2-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



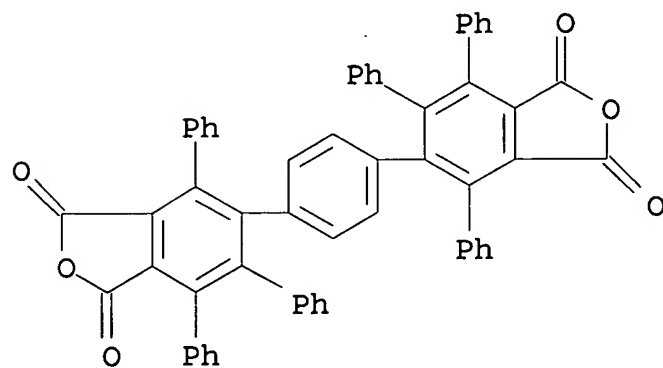
RN 56361-36-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

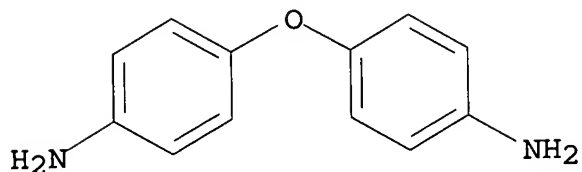
CMF C58 H34 O6



CM 2

CRN 101-80-4

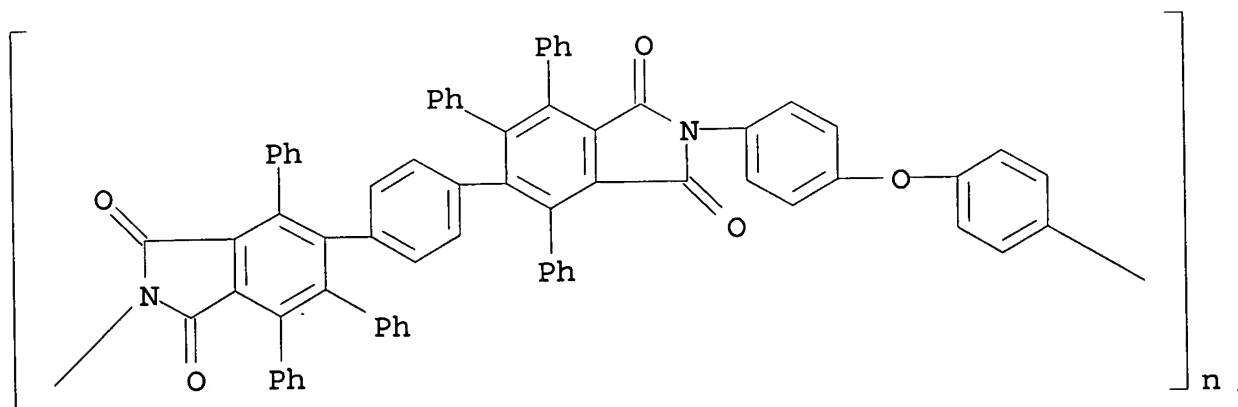
CMF C12 H12 N2 O



RN 56361-50-3 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



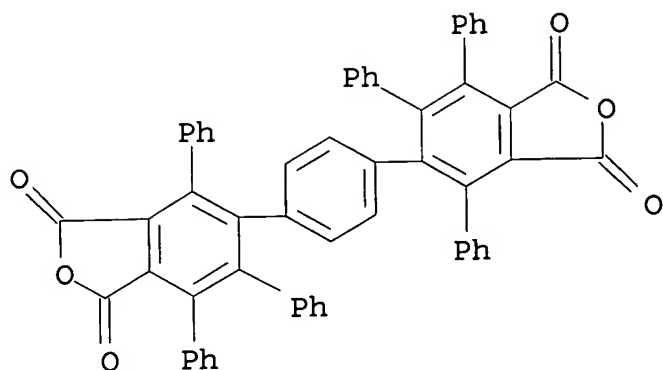
RN 59268-18-7 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-, polymer with 3,3'-[1,3-phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

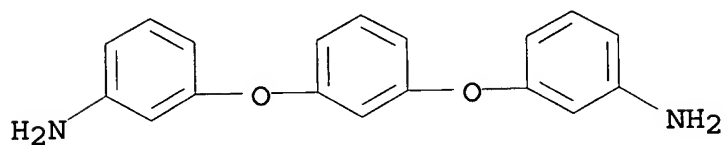
CMF C58 H34 O6



CM 2

CRN 10526-07-5

CMF C18 H16 N2 O2



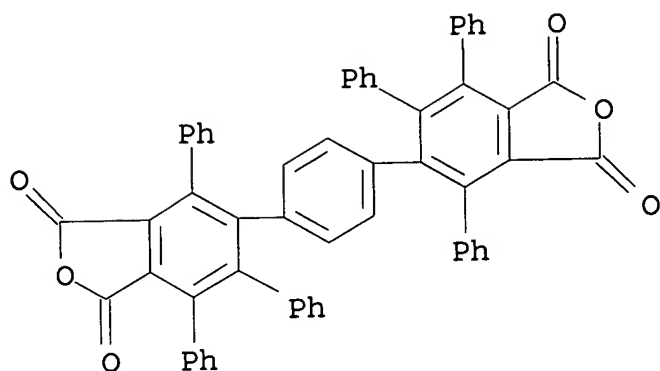
RN 59268-19-8 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-,
polymer with 1,3-benzenediamine (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

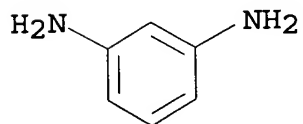
CMF C58 H34 O6



CM 2

CRN 108-45-2

CMF C6 H8 N2

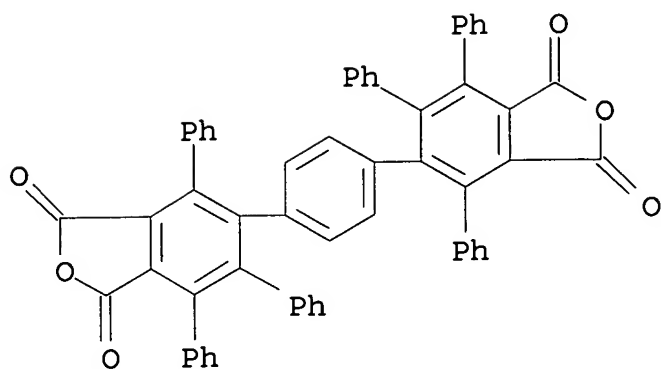


RN 59268-20-1 HCAPLUS
 CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-],
 polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

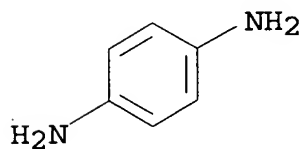
CMF C58 H34 O6



CM 2

CRN 106-50-3

CMF C6 H8 N2

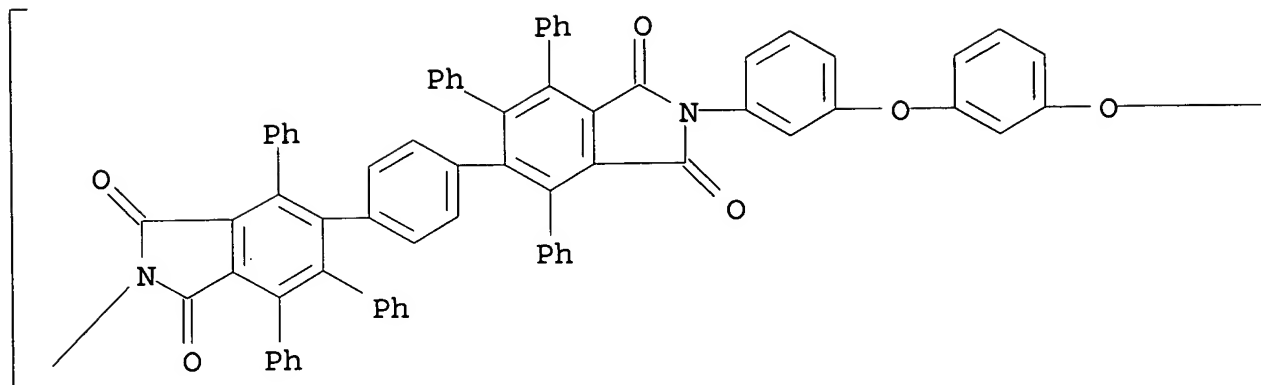


RN 59272-87-6 HCAPLUS

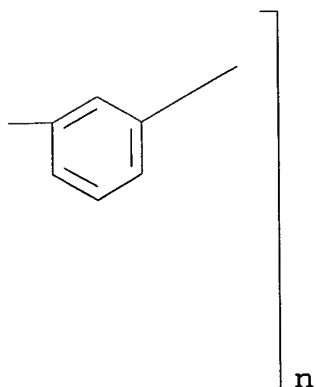
CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-
 1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-
 5,2-diyl)-1,3-phenyleneoxy-1,3-phenyleneoxy-1,3-phenylene] (9CI)
 (CA INDEX NAME)

PAGE 1-A



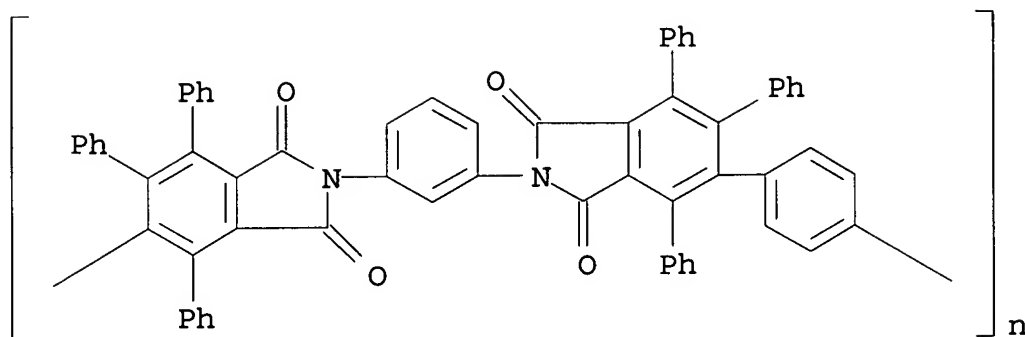
PAGE 1-B



RN 59272-88-7 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-5,2-diyl)-
 1,3-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-
 2,5-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-3 (Synthetic High Polymers)

IT 53925-98-7P **53925-99-8P** 56361-35-4P
56361-36-5P 56361-49-0P **56361-50-3P**
 59268-13-2P 59268-14-3P 59268-15-4P 59268-16-5P
 59268-17-6P **59268-18-7P** **59268-19-8P**
59268-20-1P 59268-78-9P 59268-79-0P 59272-86-5P
59272-87-6P **59272-88-7P** 59298-40-7P

(preparation, glass transition temperature and thermal stability of)

L21 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:515491 HCAPLUS

DOCUMENT NUMBER: 83:115491

TITLE: Soluble aromatic polyimides from phenylated dianhydrides

AUTHOR(S): Harris, Frank W.; Feld, William A.; Lanier, Lynn H.

CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH, USA

SOURCE: Journal of Polymer Science, Polymer Letters Edition (1975), 13(5), 283-5
 CODEN: JPYBAN; ISSN: 0360-6384

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB Soluble aromatic high mol. weight polyimides were prepared from arylene

dianhydrides (I, Z = p-phenylene, p-oxydiphenylene). Thus, 4,4'-(1,4-phenylene)bis(3,5,6-triphenylphthalic anhydride) (I, Z

=

p-phenylene) (II) [53925-61-4] was prepared by the Diels-Alder reaction of 3,3'-(1,4-phenylene)bis(2,4,5-triphenylcyclopentadienone) [3432-73-3] with maleic anhydride [108-31-6] followed by dehydrogenation with Br. II was

polymerized

with 4,4'-oxydianiline to give polyimide [56361-50-3] having intrinsic viscosity 0.70 in tetrachloroethane at 30° and glass transition temperature 413°. Model compds. were prepared, e.g. II-aniline [62-53-3] reaction product for ir spectrometric characterization of the polyimides.

IT 56361-36-5P 56361-50-3P

(preparation of soluble, high mol. weight)

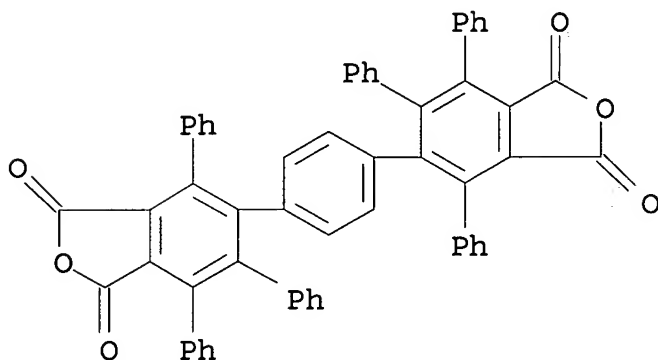
RN 56361-36-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,4-phenylene)bis[4,6,7-triphenyl-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 53925-61-4

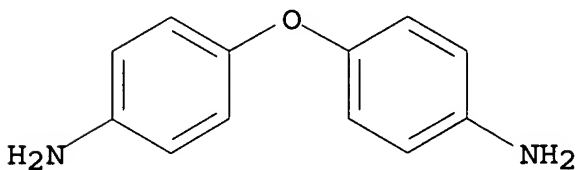
CMF C58 H34 O6



CM 2

CRN 101-80-4

CMF C12 H12 N2 O

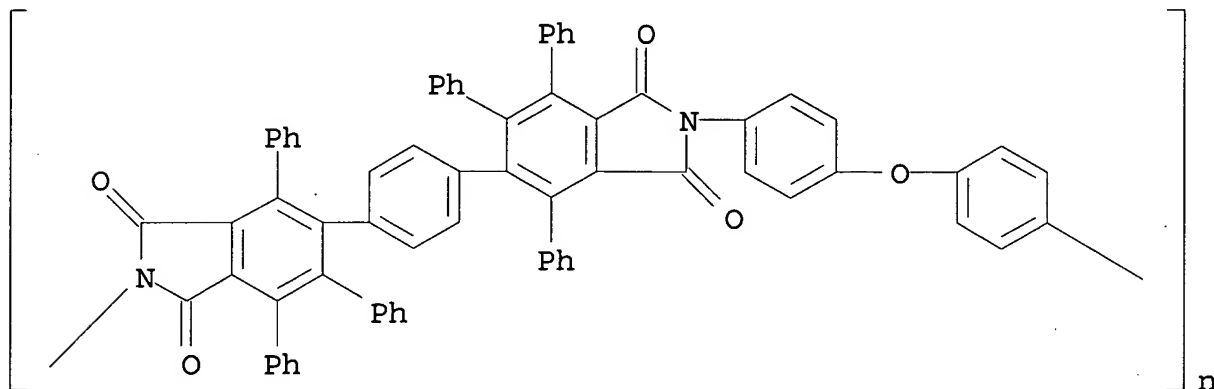


RN 56361-50-3 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-

1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 36-3 (Plastics Manufacture and Processing)

IT 56361-35-4P 56361-36-5P 56361-49-0P

56361-50-3P

(preparation of soluble, high mol. weight)

L21 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:58156 HCAPLUS

DOCUMENT NUMBER: 82:58156

TITLE: Phenylated polyimides

AUTHOR(S): Harris, Frank Wayne; Norris, Steve O.;
Lanier,

Lynn H.; Feld, William A.

CORPORATE SOURCE: Dep. Chem., Wright State Univ., Dayton, OH,
USA

SOURCE: Papers presented at [the] Meeting - American
Chemical Society, Division of Organic

Coatings

and Plastics Chemistry (1973), 33(1), 160-8

CODEN: ACOCAO; ISSN: 0096-512X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Diels-Alder reaction of tetracyclone with maleimide and N-phenylmaleimide in refluxing α -chloronaphthalene (I) for 2 hr afforded quant. yield of 1,2-dihydro-3,4,5,6-tetraphenylphthalimide [20142-94-3] and N-phenyl-1,2-dihydro-3,4,5,6-tetraphenylphthalimide [19338-17-1] resp. which were dehydrogenated with Br in $\text{Cl}_3\text{C}_6\text{H}_3$ to give corresponding soluble phthalimides[in 88-92% yield and with high m.p. (332-479°)] which polymerized with

3,3'-arylenedi-2,4,5-triphenylcyclopentadienone

in refluxing I for 3 hr to afford quant. yields of linear pendant Ph group-containing polyimides [53949-32-9] (0.12-1.01 intrinsic viscosity in DMF at 30°) soluble in common organic solvents, and characterized by ir spectroscopy and thermal gravimetric anal.

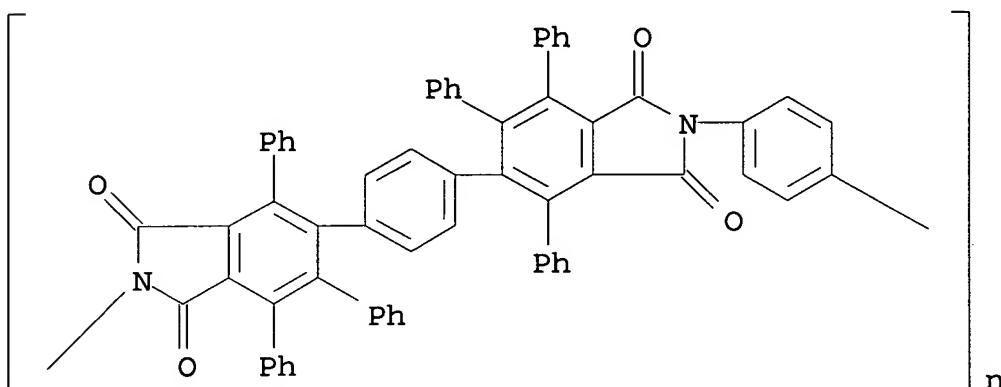
IT 53925-99-8P

(preparation of, characterization of)

RN 53925-99-8 HCAPLUS

CN

Poly[(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-2,5-diyl)-1,4-phenylene(1,3-dihydro-1,3-dioxo-4,6,7-triphenyl-2H-isoindole-5,2-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-3 (Synthetic High Polymers)

IT 28260-80-2P 28702-63-8P 28702-64-9P 33504-70-0P

53905-69-4P 53905-73-0P 53905-74-1P 53925-98-7P

53925-99-8P 53926-00-4P 53926-01-5P 53926-02-6P

(preparation of, characterization of)

L21 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1966:482059 HCAPLUS

DOCUMENT NUMBER: 65:82059

ORIGINAL REFERENCE NO.: 65:15291b-e

TITLE: 2-Isopropenyl-9,10-anthraquinone

AUTHOR(S): Manecke, Georg; Creutzburg, Klaus; Klawitter, Juergen

CORPORATE SOURCE: Freie Univ., Berlin

SOURCE: Chemische Berichte (1966), 99(8), 2440-3

CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

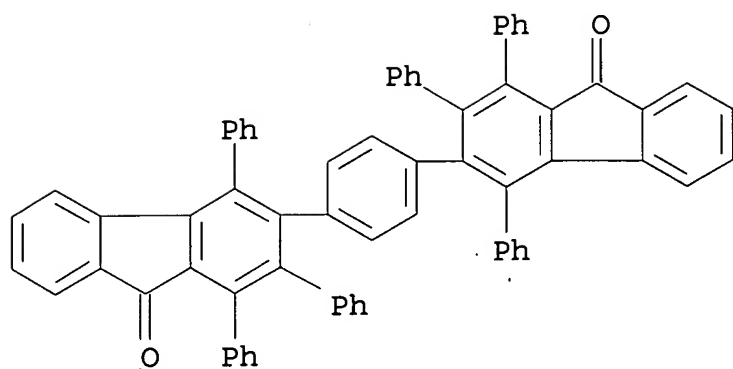
AB The title compound (I) and some derivs. were prepared
2-Isopropylantraquinone (II) (20.0 g.), 15.2 g.

N-bromosuccinimide, 100 mg. Bz2O2, and 200 cc. CCl4 refluxed 0.5 hr. with occasional shaking gave 18.25 g. 2-Me2CBr derivative (III) of anthraquinone (IV), m. 95-6° (1:2 CCl4-petr. ether). II (2.50 g.) and 20.2 mg. Bz2O2 in 5 cc. refluxing CCl4 treated dropwise with 1.6 g. Br in 5 cc. CCl4 at such a rate that only a small excess of Br was present in the mixture and refluxed 15 min. yielded 2.15 g. III, m. 95-6°. III (22.01 g.) in 200-50 cc. C5H5N refluxed .apprx.2 hrs. (or kept 48 hrs. at room temperature) and poured into 1 l. H2O gave 10.51 g. I, m. 129-30° (EtOH). III (0.5 g.) in a porcelain boat slowly evaporated at .apprx.330° in a N stream and passed through 10% Pd-asbestos in a quartz tube gave I; the catalyst was regenerated at .apprx.600-700° in an O or air stream. II (5.01 g.) in 25 cc. 1:1 AcOH-Ac2O treated at .apprx.60° with 4.5 g. powdered CrO3 in small portions and the mixture heated 10 min. at 100° and poured into H2O yielded 3.00 g. 2-Ac derivative of IV, m. 143-4° (EtOH). I (5.02 g.) in 50 cc. Ac2O and 5 drops Et3N treated 3 hrs. at room temperature with 5 g. Zn dust and boiled briefly yielded 2.99 g. 9,10-diacetoxy analog of I, m. 210-11°. I (4.98 g.) in 50 cc. dioxane treated 3 hrs. at room temperature under N with 0.8 g. NaBH4 and then with 13 g. Me2SO4 and the mixture warmed to 40° and treated dropwise with 10 cc. 10N NaOH gave 2.02 g. 9,10-dimethoxy analog of I, m. 123-4° (EtOH). I (105.7 g.), 100.1 mg. styrene, and 2.3 mg. Bz2O2 heated 90 hrs. at 100° gave 130.8 g. pale yellow polymer, m. 241-5° (C6H6MeOH). I (127.0 g.), 131.0 mg. isomeric C6H4(CH:CH2)2, and 5.3 mg. Bz2O2 heated 160 hrs. at 130° gave a nonfusible polymer, insol. in organic solvents.

IT 10273-55-9, Fluoren-9-one, 3,3'-p-phenylenebis[1,2,4-triphenyl- 10273-56-0, Fluoren-9-one, 1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi- 10483-97-3, Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl- (preparation of)

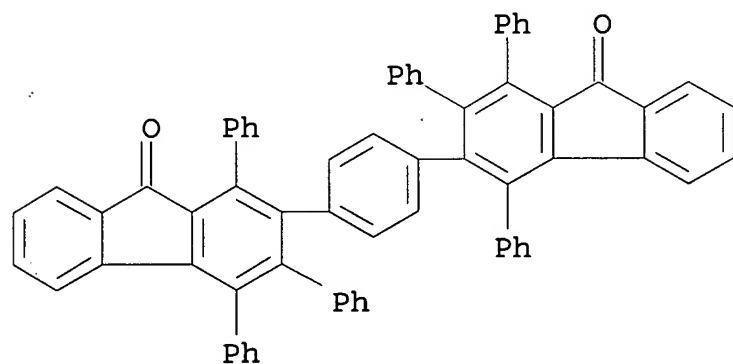
RN 10273-55-9 HCAPLUS

CN Fluoren-9-one, 3,3'-p-phenylenebis[1,2,4-triphenyl- (7CI, 8CI) (CA INDEX NAME)



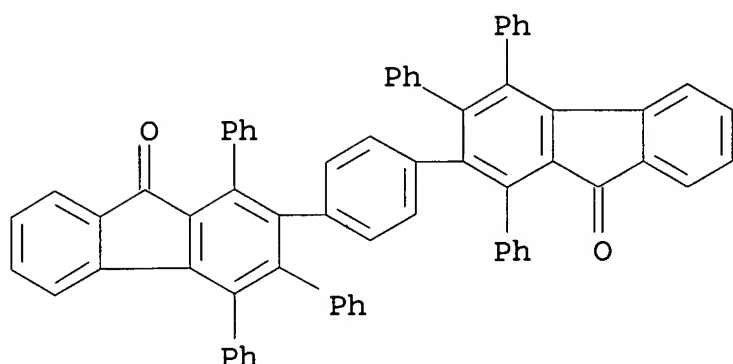
RN 10273-56-0 HCAPLUS

CN Fluoren-9-one, 1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi-
(7CI, 8CI) (CA INDEX NAME)



RN 10483-97-3 HCAPLUS

CN Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl- (7CI, 8CI)
(CA INDEX NAME)



CC 36 (Condensed Aromatic Compounds)
 IT 1558-41-4, Anthracene, 2-isopropenyl-9,10-dimethoxy- 1912-86-3,
 Anthraquinone, 2-isopropenyl- 3635-40-3, 9,10-Anthracenediol,
 2-isopropenyl-, diacetate 10273-55-9, Fluoren-9-one,
 3,3'-p-phenylenebis[1,2,4-triphenyl- 10273-56-0,
 Fluoren-9-one, 1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi-
 10273-60-6, Anthraquinone, 2-acetyl- 10483-97-3,
 Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl- 97753-94-1,
 Anthraquinone, (1-bromo-1-methylethyl)-
 (preparation of)

L21 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1966:482058 HCAPLUS
 DOCUMENT NUMBER: 65:82058
 ORIGINAL REFERENCE NO.: 65:15290f-h,15291a-b
 TITLE: An indanocyclone and its reaction with
 alkynes
 AUTHOR(S): Ried, Walter; Freitag, Dieter
 CORPORATE SOURCE: Univ. Frankfurt/M., Germany
 SOURCE: Chemische Berichte (1966), 99(8), 2675-7
 CODEN: CHBEAM; ISSN: 0009-2940
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 OTHER SOURCE(S): CASREACT 65:82058

GI For diagram(s), see printed CA Issue.

AB Ninhydrin (I) with (PhCH₂)₂CO (II) yielded the indanocyclone III
 (Ar = Ph) (IV) which reacted with alkynes at higher temps with
 the

elimination of CO and the formation of arylated fluorenones.
 Thus, I (7.12 g.) and 8.4 g. II in 75 cc. refluxing absolute EtOH
 treated dropwise with stirring with 7 cc. 10% KOH-MeOH (1
 drop/10-15 sec.) and the mixture stirred 1 hr. at 80° yielded
 10.4 g. violet IV, m. 205-6° (MeCN and then C₆H₆), violet

in MePh, yellow-brown in concentrated H₂SO₄. I (1.78 g.) and 3.00 g. (p-O₂NC₆H₄CH₂)₂CO in 40 cc. absolute EtOH treated with 3 cc. 10% KOH-MeOH gave 2.5 g. violet IV (Ar = p-O₂NC₆H₄), m. 263-5° with previous sintering, brown in concentrated H₂SO₄. IV and the appropriate alkyne, RC:CR' (molar amts.), heated several hrs. without solvents until the gas evolution ceased yielded the corresponding tabulated V. R, R', M.p., % Yield, Reaction

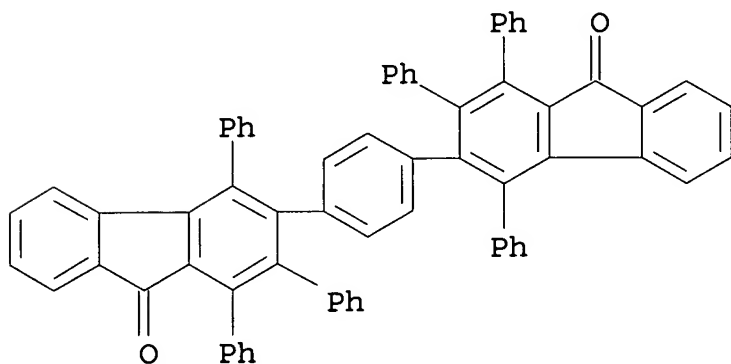
temperature,

Reaction time (min.); Ph, Ph, 309-10° (AcCH₂CO₂Et), 66, 230-80°, 15; H (or Ph), Ph (or H), 310-13° (AcCH₂CO₂Et), 93, 120-40°, 90; CO₂Me, CO₂Me, 208-10° (EtOH), 94, 160-80°, 40; Bz, Bz, 225-6° (AcOEt), 80, 116-200°, 120; PhC.tplbond.C, Ph; or; Ph, PhC.tplbond.C, 198-200° (EtOH), 79, 180-200°, 120; p-C₆H₄(C.tplbond.CPh)₂ with IV during 1.5 hrs. at 230-80° yielded 96% VL (or VII or VIII, m. 349-54° (xylene).

IT 10273-55-9, Fluoren-9-one, 3,3'-p-phenylenebis[1,2,4-triphenyl- 10273-56-0, Fluoren-9-one, 1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi- 10483-97-3, Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl- (preparation of)

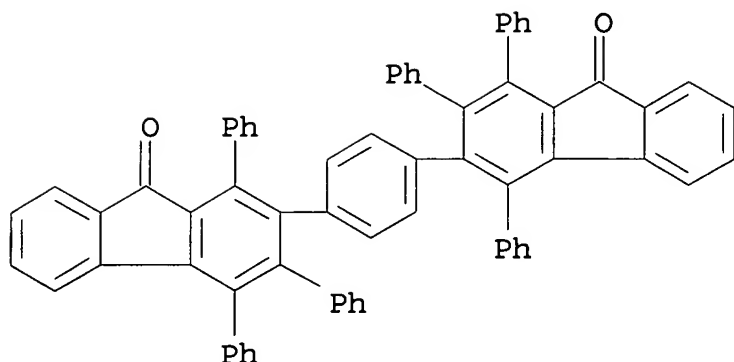
RN 10273-55-9 HCAPLUS

CN Fluoren-9-one, 3,3'-p-phenylenebis[1,2,4-triphenyl- (7CI, 8CI) (CA INDEX NAME)



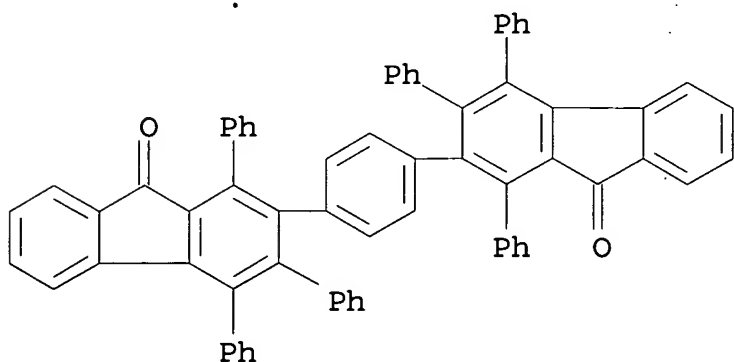
RN 10273-56-0 HCAPLUS

CN Fluoren-9-one, 1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi- (7CI, 8CI) (CA INDEX NAME)



RN 10483-97-3 HCAPLUS

CN Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl- (7CI, 8CI)
(CA INDEX NAME)



CC 36 (Condensed Aromatic Compounds)

IT 6583-73-9, Fluoren-9-one, 1,2,3,4-tetraphenyl- 6583-75-1,
Fluorene-2,3-dicarboxylic acid, 9-oxo-1,4-diphenyl-, dimethyl
ester 6583-76-2, Fluoren-9-one, 2,3-dibenzoyl-1,4-diphenyl-
6583-79-5, Fluoren-9-one, 1,3,4-triphenyl-2-(phenylethynyl)-
6662-93-7, Fluoren-9-one, 1,2,4-triphenyl-3-(phenylethynyl)-
10273-55-9, Fluoren-9-one, 3,3'-p-phenylenebis[1,2,4-
triphenyl- 10273-56-0, Fluoren-9-one,
1,1',2',3,4,4'-hexaphenyl-2,3'-p-phenylenedi- 10483-97-3
, Fluoren-9-one, 2,2'-p-phenylenebis[1,3,4-triphenyl-
105020-66-4, Fluoren-9-one, 1,2,4(or 1,3,4)-triphenyl-
(preparation of)